**Exercises**

**Epidemiology and Biostatistics Session**

***Jan 19, 2008***

1. Sundarnagar is a community of 100,000 persons (55,000 men; 45,000 women). During 2005, there were 1000 deaths from all causes (600 men; 400 women). All cases of tuberculosis has been found and they total 500 (300 men; 200 women). During 2005, there were 100 deaths from tuberculosis (50 men; 50 women).

Calculate the following for Sundarnagar for the year 2005:

1. Crude death rate
2. Sex-specific death rates
3. Proportionate mortality rate due to tuberculosis
4. Case fatality rate for tuberculosis
5. Cause-specific mortality rate for tuberculosis
6. Sex-specific mortality rate for tuberculosis
7. Communities P & Q have equal Age-adjusted Mortality Rate. Community P has a lower Crude Death Rate than Q. What may be the most probable explanation for this?
8. The Crude Death Rate has fluctuated moderately in NewYork City over the past 40 years, yet the age-adjusted rate has fallen by 42%. What is the most probable explanation?
9. During analysis of demographic data, the cause-specific crude mortality rate (per 100,000 population) due to ‘atherosclerosis and degenerative heart disease’ was found to be 67.4 and 316.3 respectively for two towns X and Y. If you are given this data to interpret, what will be your interpretation? If you have access to the raw data for more analysis, what more analysis will you order?
10. Use the following numbers to calculate the annual incidence rate and 1991 prevalence of AIDS per 100,000 population in Hispanics in Houston, Texas. Also calculate the 95% CI

Total estimated Hispanic population in 1991: 452,780

Total cases of AIDS in Hispanics reported from 1981- 1990: 850

Total new cases of AIDS reported in Hispanics in 1991: 95

Total deaths from AIDS in Hispanics from 1981 (first year reporting began) to 1990: 595

1. During the first 9 months of national surveillance for eosinophilia-myalgia syndrome (EMS), CDC received 1,068 case reports which specified sex; 893 cases were in females, 175 in males.
   1. Calculate the female-to-male ratio for EMS
   2. Calculate the proportion of cases among male with 95% CI
2. In 1987, a total of 12,088 HIV-related deaths occurred in males and 1,380 HIV-related deaths occurred in females (10). The estimated 1987 midyear population for males and females was 118,531,000 and 124,869,000, respectively.

a. Calculate the HIV-related death rate for males and for females.

b. What type of mortality rates did you calculate in step a?

c. Calculate the HIV-mortality rate ratio for males versus females.